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PROGNOSTIC INDICATORS OF DELINQUENT BOYS IN A TRAINING SCHOOL

by

Donald Hays Campbell

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Thesis

PROGNOSTIC INDICATORS OF DELINQUENT BOYS IN A TRAINING SCHOOL

Submitted by

Donald Hays Campbell

(B.S., University of Massachusetts, 1927)

In partial fulfillment of requirements for

the degree of Master of Education

1948

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Chapter I

THE PROBLEM

Statement of Problem

The purpose of this thesis is to investigate certain data which are routinely available shortly after a boy's commitment to a training school in order to determine whether they are significantly related to success or failure in open community adjustment after parole.

By routinely available information is meant any information concerning such an individual available within the first month after commitment. This ordinarily consists of facts gleaned by a study of a report on his home conditions and his history before commitment as well as the results of physical examination, psychometric and aptitude tests and psychologist's interviews.

Success, for the purpose of this study, will be measured by the ability of the individual to keep out of court, to fit into a family without undo friction and to regularly attend school or hold down a job.

Failure, in like manner, will be measured by

arrests, commitment to other institutions, friction with parental authority or inability to meet the demands of school or employment.

Delimitation

Various factors make it necessary to limit this particular study to individuals committed to the Lyman School for Boys at Westborough, Massachusetts. This, however, is a state-operated training school receiving boys between the ages of seven and fifteen from courts all over the commonwealth and, as such, is in many ways typical of training schools all over the country.

The factor of time makes it imperative to work with the cases of boys committed approximately ten years ago in order that success or failure, as defined above, can be measured by actual observation.

And, finally, in order to make possible a rather exhaustive study and yet one which contains a large enough group to point significant trends, a group of one hundred consecutively committed boys were selected for study.

Need of the Study

In dealing with individual delinquent boys on a clinical bases in a training school set-up, one of the major problems is matching the needs of the boy to the facilities of the institution in order to bring about

the most desirable changes in conduct, character and capacities.

In this process, a point is soon reached where more individuals obviously need the same training factors than can be provided for them. In other words, cottages, school classes, extra-curricular activities, prevocational groups, recreational facilities, hobby clubs, etc., become overcrowded and second or even third choices must be made for any given individual.

The logical procedure in such cases is, of course, to give the best facilities to the boy most likely to profit by them, that is the lad most likely to make a successful adjustment in the open community after he leaves the institution.

The problem then resolves itself into how to decide which of two individuals under study is most likely to succeed and which to fail.

This problem is continually facing the clinical workers at Lyman School and a campaign of all the New England, New York, Pennsylvania and New Jersey training schools, as well as questions asked superintendents of many others at the National Conference of Training School Superintendents, indicate that it is a major one with them.

Any information which might be discovered to have prognostic value would also be of considerable value to

teachers, probation officers, juvenile court judges, child guidance clinics, boys' clubs and the like.

A review of research in this field shows two particularly significant studies. A study, not yet published, by Drs. Sheldon and Eleanor Glueck, of a thousand delinquents which they are comparing statistically with a thousand non-delinquent siblings, should contain a wealth of material.

Professor Kvaraceus, in his study of juvenile delinquents in Passaic, New Jersey,[1/] has applied the statistical method to a study of the background which produces problem youngsters in the school system. This has been most helpful.

Recapitulation

As stated initially, this thesis attempts to answer the questions: Do certain boys with particular types of backgrounds or capacities tend to make a better adjustment in the training school and subsequently the community; and are these backgrounds and capacities recognizable soon after commitment? A favorable answer to these questions might enable more effective use of institutional facilities in the Lyman School for Boys and be of value to similar institutions and committing authorities.

1/ William C. Kvaraceus, Juvenile Delinquency and the School. World Book Company. New York, 1945, Pp VIII - 337.

Chapter II

METHODS OF PROCEDURE

Selection of Material

In attempting this study, it is necessary to choose those boys on whom information of the following nature is available:

(1) All facts must be routinely available shortly after admission.

(2) All facts must be measurable.

(3) The adjustment of the individual studied both within the institution and after release must be adequate to determine success or failure.

(4) Individuals studied must be typical rather than exceptional.

In order to meet these limitations, the cases of one hundred consecutive boys committed ten years ago was studied in detail to determine what information could be utilized. Of this one hundred cases, two or three were thrown out because unusual physical or mental factors resulted in transfer or release before adequate information became available. Their places were filled by the next boys received, in order.

The following measurable factors are found to be

routinely available:

(1) General physical condition with specific handicaps such as poor eyes, hernia, malnutrition, spinal curvature, etc.

(2) Order of birth - only child; first; last; in the middle.

(3) Number of siblings.

(4) Parents' marital status - Own parents living together; parents divorced; father dead, stepfather; mother dead, stepmother; parents separated; father and mother dead; adoptive parents.

(5) Area in which home is located - Classified as congested; borderline; residential; rural.

(6) Age at time of commitment.

(7) School status, determined by the number of years advanced or retarded, assuming that school was started at the sixth year level.

(8) I.Q. based on the Stanford Revision of the Binet.

(9) I.Q. based on Kuhlman-Anderson Test of Mental Development.

(10) I.Q. based on Porteus Mazes

(11) I.Q. based on Healy Picture Completion Test.

(12) I.Q. based on Kent-Shakow Formboards.

(13) The spread between high and low scores of

the above tests.

(14) Room inhabitant Ratio.

Classification of Success or Failure

The next step is to determine a method of separating success and failure in order to make significant comparions of the above factors. While records within the school were complete and detailed, occasionally contact had been lost with boys on parole within a comparatively few years after their final release.

Since a classification as to success and failure was so important and must be made very definite, it was decided to select twenty-five obvious failures and twenty-five assured successes from the original list of one hundred incoming boys and make the detailed comparison between these two groups. Failures were selected largely on the basis of transfer or commitment to other institutions such as the Industrial School for Boys at Shirley, the Reformatory for Men at Concord, or the Defective Delinquent Colony at Bridgewater. This accounted for eighteen of these tagged as failures. The other seven were selected on the basis of indigence or several court appearances for petty offenses.

Successes were selected purely on the basis of honorable discharge from the care of Massachusetts Training Schools. These discharges are granted only

after continued success in the matter of steady employment and failure to become involved with the police or successful participation in the armed forces.

Statistical Method

Since all fourteen of the above factors contain information which can be studied by one of two statistical methods, it would seem to be desirable to utilize statistical rather than other techniques in making comparisons between the two groups to be studied.

Percentage method.--The first five factors are not reduceable to an arithmetic mean and can, therefore, be studied only by a comparison of the number of individuals in the failure column. This method is used, as is shown in later tables, to determine whether the frequency of certain factors expressed in percentage ratios is sufficient to make them significant on a predictive basis.

These five factors are as follows:

(1) General Physical Condition
(2) Order of Birth
(3) Number of Siblings
(4) Parents' Marital Status
(5) Type of Area in which Home is Located

Comparison of arithmetic means.--The remaining nine factors all can be reduced to a single measurable quantity for each individual studied. An arithmetic mean for each group of twenty-five boys in each classification

can, therefore, be determined and the differences in means studied to determine whether they are large enough to have predictive value.

These nine factors are as follows:

(1) Age at Time of Commitment

(2) School Status (Number of years advanced or retarded)

(3) I.Q. Based on Stanford Revision of the Binet

(4) I.Q. Based on Kuhlman-Anderson Test of Mental Development

(5) I.Q. Based on Porteus Mazes

(6) I.Q. Based on Healy Picture Completion Test

(7) I.Q. Based on Kent-Shakow Formboards

(8) The spread between the High and Low scores of the above tests

(9) The room inhabitant ratio

Measure of validity for prediction.--In order to have a standard by which to measure a difference in frequency of occurrence in the first six factors and difference in means in the last nine factors, both percentage of frequency and differences in means are compared by determining a critical ratio or T in every case.

Under these circumstances, the possibility of differences occurring simply by chance as opposed to their having definite relationship with success or

failure are measurable.

C. F. Lindquist[1] says:

> It has been customary in educational research to declare a statistic significant if it is 3 or more times as large as its standard error. This is not satisfactory as a general practice, since it is limited to the case where the sampling distribution is normal. It is also too rigid a test for most purposes, since to require the "significant ratio" to exceed 3 is equivalent to requiring that the statistic be significant at the 0.26 percent level (assuming a normal sampling distribution). If the sampling distribution is normal, a statistic must be 2.576 times its standard error to be significant at the 1 percent level, or 1.960 times its standard error to be significant at the 5 percent level.

Frederick C. Mills[2] writes:

> If a given difference between hypothetical and observed values would occur as a result of chance only one time out of a hundred, or less frequently, we may say the difference is significant. This means that the results are not consistent with the hypothesis we have set up. If the discrepancy between theory and observation might occur more frequently than one time out of one hundred solely because of the play of chance, we may say the difference is not clearly significant. The results are not inconsistent with the hypothesis. The value of T (the difference between the hypothetical value and the observed mean, in units of the standard error of the mean) corresponding to a probability of 1/100 is 2.576. One hundredth part of the area under a normal curve lies at the distance from the mean, on the axis, of 2.576

1/ C. F. Lindquist, Statistical Analysis in Educational Research. Houghton Mifflin Company. Boston, 1940, p. 16.

2/ Frederick C. Mills, Statistical Methods. Henry Holt and Company. New York. Revised Edition, 1938, p 471.

> standard deviations or more. Accordingly, tests of significance may be applied with a direct reference to T, interpreted as a normal deviate (i.e. as a deviation from the mean of a normal distribution expressed in units of standard deviation). A value of T of 2.576 or more indicates a significant difference, while a value of less than 2.576 indicates that the results are not inconsistent with the hypothesis in question.

It, therefore, seems safe to assume that wherever a critical ratio greater than 2.576, or close to it, is encountered, even in a study as limited as this, the factor involved should be considered a significant one from the standpoint of having predictive value.

Herbert Sorensen[1/] has worked out the probability of a given critical ratio occurring in a normal distribution by chance. According to him, a critical ratio of 2.1 indicates chances of thirty to one that the deviation did not occur by chance. Even in a study as limited as this, such a critical ratio should be of some value.

1/ Herbert Sorensen, Statistics for Students of Psychology and Education. McGraw-Hill Book Company, Inc. New York, 1936, p 365 appendix.

Chapter III

FINDINGS

Physical Condition on Admission to Lyman School

The routine physical examination given at Lyman School during the first twenty-four hours after admission has always been quite complete so that in every one of twenty-five cases classified as failures and the twenty-five classified as successes a complete report by the same physician is available.

Table I lists the significant findings of each group as regards those who had good physical condition and, in the case of those who had limitations, these are specifically named and recorded. In the case of eyes, those boys who needed glasses were listed as "Poor Eyes".

In this table, the only critical ratio large enough to seem at all significant is the 2.18 which indicates that these boys who had some physical limitations would, surprisingly enough, be more apt to become successes in later life. This may be explained, however, by the fact that boys who need physical repairs receive more individual attention than others. Frequent

contact with the school physician (a particularly magnetic personality), trips to Boston for eye examination, etc., more interest on the part of school teachers, cottage masters and other officials could account for better work being done on these boys.

The most significant finding from a study of this table would seem to be a demonstration of the need for more individual work with boys rather than a belief that physical impairment is an asset for success in life.

Table 1. Physical Condition of Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

	25 Later Successes		25 Later Failures		
	Number	Percent	Number	Percent	Critical Ratio
Good Condition	17	68.0%	23	92.0%	2.18
Poor Eyes	3	12.0%	0	0.0%	1.79
Hernia	2	8.0%	0	0.0%	1.49
Lateral Curvature	1	4.0%	1	4.0%	.0
Under Nourished	2	8.0%	0	0.0%	1.49
Under Sized	0	0.0%	1	4.0%	1.36
Totals	25	100.0%	25	100.0%	

Order of Birth

The following table indicates the order in which the fifty boys being studied arrived in their family group. Families vary so much in size (from 3 to 21)

that the only practical method is to list them as first born, last born, born in between first and last or as only children.

Table II Order of Birth of Fifty Boys Committed to Lyman School, Twenty-five of Whom Later became Successes, Twenty-five Failures

	25 Later Successes		25 Later Failures		
	Number	Percent	Number	Percent	Critical Ratio
Only Child	1	4.0%	1	4.0%	.0
First Born	3	12.0%	3	12.0%	.0
Last Born	1	4.0%	6	24.0%	2.41
In Between	20	80.0%	15	60.0%	1.94
Totals	25	100.0%	25	100.0%	

The only Critical Ratio approaching significance is that of 2.41 tending to point out that the last born in a family is less apt to become a later success.

This seems at variance with the findings of Professor W. C. Kvaraceus[1/] who found, in his study of children referred to the Passaic Children's Bureau, that the greatest hazard lay with those born in the

1/ William C. Kvaraceus, Juvenile Delinquency and the School. World Book Company. New York, 1945, p. 63.

middle of the group.

Further study reveals that the largest percentage of boys committed to Lyman School fall in the middle classification so that, possibly, being the last of the group means that a boy will be less influenced by adverse family conditions and, therefore, more apt to make a success after Lyman School training. In this case, being the last of the family group would have definite predictive value for success.

Number of Siblings

Many students of delinquency feel that membership in a large family is a factor producing juvenile delinquency. The Gluecks[1] discovered five to be the mean number of children in their delinquent group. Professor Kvaraceus[2] finds that in approximately 33 percent of the cases referred to the Passaic Children's Bureau there were three cases with ten and four with thirteen children.

A study of the fifty cases dealt with in this thesis shows the mean number of children in the families from which they were committed to be six.

1/ Sheldon and Eleanor Glueck, One Thousand Juvenile Delinquents. Harvard University Press. Cambridge. p 77.

2/ William C. Kvaraceus, Juvenile Delinquency and the School. World Book Company. New York, 1945, p. 80.

Table III Number of Siblings in Families of Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

	25 later Successes		25 Later Failures		
	Number	Percent	Number	Percent	Critical Ratio
None	1	4.0%	2	8.0%	.40
1 or 2	4	16.0%	9	36.0%	2.44
3 or 4	5	20.0%	5	20.0%	.0
Over 4	15	60.0%	9	36.0%	1.71
Totals	25	100.0%	25	100.0%	

A study of the above table has only one Critical Ratio (2.44) which approaches significance. It is interesting to note that the chances of success in later life, possibly due to training school experience, are greater with boys who have four or more brothers and sisters than with those coming from smaller family groups. This would seem entirely consistent with other findings since if large families make for delinquency either because of lack of funds or parental attention then it would be reasonable to assume that children with better inherent qualities from large families would be likely to come to the attention of law inforcement authorities. These children should react more favorably to training school influences than those who committed the same offenses in spite of the advantage of living in smaller families.

Size of the family group then would seem to have quite definite prognostic value in determining likelihood of responding favorably to the training school program.

Parents' Marital Status

Another factor which most authorities believe contributes to delinquency is the so-called broken home, that is, a home in which either the natural mother or father, or both, are not in evidence due to death, divorce or separation. On 1,000 cases studied by Dr. Healy,[1/] 498 were found to come from such homes.

Table IV Marital Status of Parents of Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

	25 Later Successes		25 Later Failures		
Own Parents Living Together	Number 18	Percent 72.0%	Number 11	Percent 44.0%	Critical Ratio 2.11
Parents Divorced	2	8.0%	4	16.0%	.85
Parents Seperated	2	8.0%	2	8.0%	.0
Fa. Dead-St. Fa.	2	8.0%	3	12.0%	.42
Fa. & Mo. Dead	0	.0%	1	4.0%	1.36
Mo Dead - St. Mo.	1	4.0%	3	12.0%	1.14
Adoptive Parents	0	.0%	1	4.0%	1.36
Totals	25	100.0%	25	100.0%	

1/ William Healy, The Individual Delinquent. Little, Brown and Company. Boston, 1929, p 149.

In this table, the only category which favors boys to become successes is to have both natural mother and natural father living together. The Critical Ratio comparing this group at least approaches significance, being 2.11. If the fact that boys from this group stand a smaller chance of becoming delinquents and, therefore, should by and the large have less inherent stability then this becomes even more significant.

Area of the Home

Since most boys committed to Lyman School return to their own homes and since most authorities are agreed that the majority of our delinquents come from conjested areas, it would seem probable that coming from a home located in a congested area would mean a considerable hazard when it comes to later success.

The following table lists the two groups as to the type of neighborhood in which their homes were located at the time of commitment. Since very few families move to better home conditions during a boy's stay, these are also largely the same areas to which they returned.

Contrary to what one would expect, no Critical Ratio in the following table seems large enough to appear at all significant. It may be that while most delinquents come from congested or borderline areas

the screening process which brings about commitment so weeds out the material that, since boys return to the same environment, the training program of the Lyman School has no more effect on one group than another.

In any case, there would seem to be no predictive significance in this area. An interesting study might be made by gleaning from the records those cases which were committed from one type of neighborhood and returned to another.

Table V. Type of Neighborhood from which Fifty Boys were Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

	25 Later Successes		25 Later Failures		
	Number	Percent	Number	Percent	Critical Ratio
Congested	9	36.0%	8	32.0%	.30
Borderline	8	32.0%	9	36.0%	.30
Residential	5	20.0%	3	12.0%	.36
Rural	3	12.0%	5	20.0%	.80
Totals	25	100.0%	25	100.0%	

Age at Time of Commitment

If the training school program is of benefit it would seem logical to expect that boys received at an early rather than late age would respond better since

it is largely agreed that attitudes formed in pre-adolescent years greatly color the life of the individual. Burnham[1/] says, speaking of the pre-adolescent period,:

> While not as spectacular as the early years of childhood or as the later years of youth, it (the pre-adolescent period) is of prime significance in the development of personality.

The following table compares the means of the ages of the fifty boys committed to Lyman School who are the basis of this study. M_s equals the mean age of the twenty-five who later became successes. M_f equals the mean age of the twenty-five who later became failures.

Table VI. Comparison of Means of Ages, in Months, of Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s 159 Mos.	SD_s 82.25	$SE_{of M_s}$ 1.65	$SE_{of Diff M_s M_f}$ 1.65	$Diff M_s - M_f$ 5.0	CR 3.03
M_f 164 Mos	SD_f 15.3	$SE_{of M_f}$ 3.60			

1/ William H. Burnham, The Wholesome Personality. C. Appleton and Company. New York. p 39.

The Critical Ratio obtained here (3.03) is well above the generally accepted point of significance (2.576) and would seem to indicate a very real weighting of a boy's chances of later successes after training school commitment in favor of the younger boy.

This could, of course, be due to a number of factors. Possibly, the most dangerous time from the standpoint of character formation is in the early rather than late adolescence. Possibly, younger commitment means simply earlier detection, by chance, on the part of the police. It may be that the younger boy is simply more easily influenced by the institution.

In any case and no matter why, the younger boy of two at the time of commitment, other things being equal, would seem to be a better prospect for later success.

School Status

Much has been written and more said about the effect of retardation in public schools in the making of delinquents. The Gluecks[1/] reported 84.5 per cent of 935 cases as having repeated at least one year in

1/ Sheldon and Eleanor Glueck, One Thousand Juvenile Delinquents. Harvard University Press. Cambridge, p 87-88.

their school history. Professor Kvaraceus[1/] reports 41.2 per cent of all boys referred to the Passaic Children's Bureau, from all sources as problems, to be one or more terms retarded in school as opposed to 20.7 percent of a city-wide control group.

The mean number of years of school retardation of the fifty boys here studied is 1.51. This is based on the assumption that school was begun at the age of six years.

The question of whether school retardation is a cause of delinquency or a symptom is here beside the point. The fact that school retardation and delinquency go hand in hand is obvious. It would, therefore, be expected that the less the retardation the greater the individual delinquent's chance of redemption.

Table VII Comparison of Mean Number of Years' Retardation in School of Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s .92 yrs.	SD_s 1.92	SE of M_s .184	SE of Diff $M_s M_f$ .374	Diff M_s-M_f 1.24	CR 2.82
M_f 2.16 yrs.	SD_f 2.02	SE of M_s .404			

1/ William C. Kvaraceus, Juvenile Delinquency and the School. World Book Company. New York, 1945, p 139.

A Critical Ratio well over 2.576 is again apparent, the advantage, as would be expected, with those boys least retarded in school. A retardation of less than one year definitely makes for later success, a retardation of more than two years for failure.

It should be noted here, the age range of these boys, as shown, is between ten years and fifteen years with a mean age of the time of commitment of thirteen years, five months. This means that almost all of them, under Massachusetts' present laws, have to face the necessity of adjustment in public school after parole. A comparison similar to this, of boys who had reached the age of sixteen, would be interesting and might tend to shed light on the question of whether school retardation is a cause or symptom of delinquency.

Intelligence Quotient in Terms of Binet Test

Hand in hand with school retardation goes the factor of intelligence. It must be realized that such factors as general health, attitude toward authority, appearance, manners, habits of application and motivation have a great deal to do with school success or failure. Still, without capacity, school work cannot be done.

The question arises, then, as to whether general intelligence is a significant factor in determining the chances of later success in delinquents. The Stanford

Revision of the Binet-Simon Test of Intelligence has long been recognized as one of the most reliable of tests of general intelligence.

Table VIII Comparison of Means in Terms of I.Q. Scores on Binet Test Administered to Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s 85.2	SD_s 14.62	SE of M_s 2.92	SE of Diff M_s M_f 3.93	Diff M_s-M_f 3.60	CR 0.92
M_f 88.8	SD_f 13.16	SE of M_f 2.63			

A Critical Ratio as small as .92 indicates that this difference in mean I.Q.'s between successes and failures could easily have occurred, especially in such a limited number of cases, by chance.

When this is compared with the previously indicated importance of school retardation as a factor in predicting later failure, it would seem to indicate that, within ordinary limits, intelligence as measured by this test is not a particularly important factor in predicting reasonably good adjustment in later life.

As a matter of fact, the range in I.Q.'s of both successes and failures was the same with a low score in each case between sixty and sixty-four and a high score between one hundred ten and one hundred fourteen.

In the case of the later successes, the highest incidence was between ninety-five and ninety-nine and of the later failures between ninety and ninety-four. Surprisingly enough, eight boys who later earned honorable discharges had intelligence quotients below seventy.

Intelligence Quotient in Terms of Kuhlman-Anderson Test of Mental Development

Intelligence quotient, as determined by the Kuhlman-Anderson Test of Mental Development, is an attempt to determine by means of a different instrument the same measure of general intelligence considered in the previous section.

Table IX Comparison of Means of I.Q. Scores on Kuhlman-Anderson Test of Mental Development Administered to Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s 87.7	SD_s 10.66	$SE_{of}M_s$ 2.13	SE_{of} Diff $M_s M_f$ 3.75	Diff M_s-M_f 2.70	CR 0.78
M_f 85.0	SD_f 12.75	$SE_{of}M_f$ 2.71			

Here again a Critical Ratio of .78 is far too small to indicate any real prognostic value in the scores of this test as measure of likelihood of later success.

It should be noted, however, that the difference between mean intelligence quotient scores is 2.7 in the

Kuhlman-Anderson as against 3.6 in the Binet and that both means in both tests range between 85.0 and 88.8. The range between bottom and top scores is also almost identical and so is frequency.

This means simply that both tests apparently measure much the same things and that the two together present even stronger evidence that general intelligence as measured by the Binet test or the Kuhlman-Anderson is not a significant predictor of likelihood of success in later life of delinquent boys.

Both the Stanford Revision of the Binet Test and the Kuhlman-Anderson Test of Mental Ability have one outstanding limitation in common. Both depend largely on the ability of the subject to comprehend language and are, therefore, discriminatory wherever language difficulties are in evidence. Both also correlate highly with capacity to succeed in school achievement but, as was indicated above, both have little correlation with ability to make good social adjustment.

Intelligence Quotient in Terms of Porteus Mazes

The Porteus Mazes, as do all types of maze tests, represent the attempt of testers to avoid the inadequacy of the so-called language tests of mental ability.

According to the author, this test was: "Designed to examine an individual's planning capacity, prudence

and mental alertness in a new situation of concrete nature".[1]

Whether Porteus was successful in this or not, it would seem desirable to determine whether whatever capacity is measured by his test is significant as a predictor of success or failure in this study.

Table X Comparison of Means of I.Q. Scores on Porteus Maze Test Administered to Fifty Boys Committed to the Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s 99.8	SD_s 22.2	SE of M_s 4.40	SE of Diff $M_s M_f$ 5.58	Diff $M_s - M_f$ 2.20	CR 0.39
M_f 97.6	SD_f 17.25	SE of M_f 3.45			

This Critical Ratio is far too small to be considered as a predictor of either success or failure in later life. As a matter of fact, it was dropped years ago from Lyman School's battery of diagnostic tests because the classification conference group could find little diagnostic value in it in their study of recently committed boys.

1/ Bronner, Healy, Howe and Shimberg, A Manual of Individual Tests and Testing. Little, Brown and Company Boston, p 224

Intelligence Quotient in Terms of Healy Picture Completion Test

Another test designed to avoid the pitfalls of a language test is that developed by William Healy in connection with his work at the Judge Baker Child Guidance Clinic

While Healy[1/] himself admits, "It is impossible to state at this time just what we are testing", the test is well-standardized and deserving of further inquiry.

Table XI Comparison of Means of I. Q. Scores on the Healy Picture Completion Test Administered to Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s 80.0	SD_s 18.0	SE of M_s 3.60	SE of Diff $M_s M_f$ 5.20	Diff M_s-M_f 11.2	CR 2.15
M_f 91.2	SD_f 18.75	SE of M_f 3.75			

While this Critical Ratio is not large enough to meet the standard of 2.576, it is close enough to it to at least seem to have some value as a predictor of ability to adjust successfully.

1/ Bronner, Healy, Howe and Shimberg, A Manual of Individual Tests and Testing. Little, Brown and Company. Boston, p 186.

Note, however, that the high mean of the scores is of the group which turned out to be failures rather than successes so that whatever capacity the test measures is apparently a liability rather than an asset in later life.

A further study of these test scores utilizing more cases and comparing their scores with various aspects of success might prove really beneficial.

Intelligence in Terms of Kent-Shakow Form Boards

The third performance test studied is the Kent-Shakow or Worcester Form Board Test.

At the time it was being administered at the Lyman School, it was newly developed and the authors made no claims as to what capacity it was supposed to measure.

Table XII Comparison of Means of Scores on Kent-Shakow Form Boards Test Administered to Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s 101.0	SD_s 24.95	$SE_{of M_s}$ 4.99	$SE_{of Diff M_s M_f}$ 7.16	Diff $M_s - M_f$ 0.8	CR 0.10
M_f 101.8	SD_f 25.94	$SE_{of M_f}$ 5.13			

This test also was dropped, years ago, from Lyman School's diagnostic battery and, with a critical ratio

of only 0.10, contains nothing significant for this study.

Spread Between High and Low Test Scores

When it was found that only one of the five tests subjected the statistical examination utilized in this study even approached a significant critical ratio, it was decided to try one other method of comparison in an attempt to discover some indication of predictive value in these tests. The following table is a comparison of the spread between the highest intelligence quotient and the lowest intelligence quotient scored by each individual in the entire battery of five tests, namely:- The Binet, Kuhlman-Anderson, Porteus Mazes, Healy Picture Completion and Kent-Shakow Form Boards.

The idea behind this is that a large spread between top and bottom scores would indicate good capacity in at least one field.

Table XIII Comparison of Means of Spread Between Highest and Lowest Test Scores in Battery of Five Tests Administered to Fifty Boys Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s 45.8	SD_s 17.52	SEM_s 2.90	$SE_{of\ Diff\ M_s M_f}$ 3.87	$Diff\ M_s + M_f$ 8.8	CR 2.02
M_f 37.0	SD_f 13.25	SEM_f 2.65			

While a critical ratio of 2.02 is not large enough to meet the standard 2.576, it is large enough to be at least partially significant, especially when note is made of the fact that boys with a large spread are mostly in the success column.

Room Inhabitant Ratio

In an attempt to get at a statistical measuring stick of home life, one of the "strategums" devised by social science students is that of the room inhabitant ratio. This idea is that over-crowding and, therefore, poor home background as well as economic distress will be reflected in the ratio of the number of individuals living in a home devided by the number of rooms devoted to living in the same home.

If this ratio is 1.5 or less, it is considered to be "Within Average Limits". If it is greater, indications of bad over-crowding are in evidence.

The mean room inhabitant ratio of all fifty boys utilized in this study was .84 indicating a surprising lack of over-crowding. In Passaic, New Jersey, for instance, 49.3 per cent of all cases referred to the Children's Bureau had a ratio of 1.6 or over and only 30.1 per cent a ratio of 1.0 or less.[1/]

1/ William C. Kvaraceus, Juvenile Delinquency and the School. World Book Company. New York, 1945.

Table XIV Comparison of Means on Room Inhabitant Ratio of Homes from Which Fifty Boys were Committed to Lyman School, Twenty-five of Whom Later Became Successes, Twenty-five Failures

M_s 0.70	SD_s 3.51	SE of M_s 0.70	SE of Diff $M_s M_f$ 7.26	Diff M_s-M_f 0.3	CR .345
M_f 1.0	SD_f 2.60	SE of M_f 0.52			

This Critical Ratio is altogether too low to be seriously considered and could hardly be expected to be significant where evidence of over-crowded conditions were so lacking.

Undoubtedly, war conditions and housing shortages which have become acute in recent years would make a re-study of this nature show considerable difference.

At the time of this study, only two later successes came from homes with a ratio above 1.5 and four later failures.

Chapter IV

SUMMARY AND CONCLUSIONS

Summary

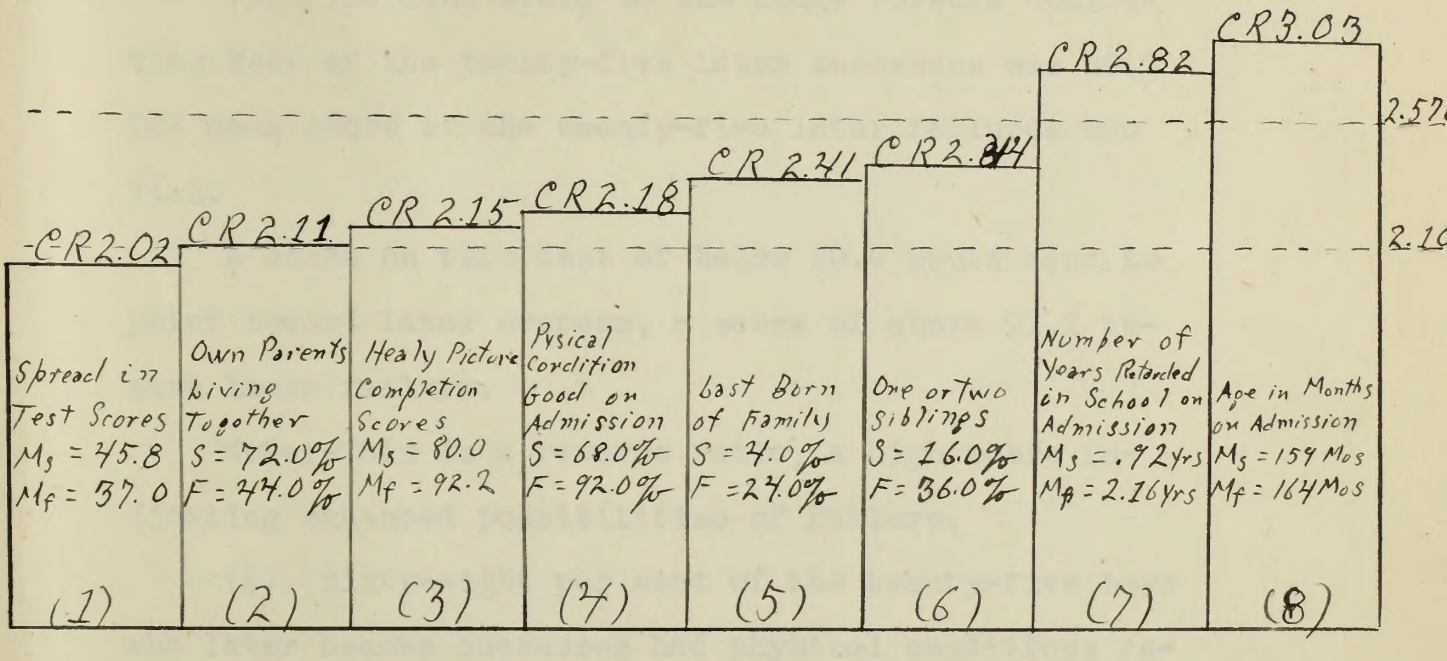
The original purpose of this thesis was to study certain data which are routinely available shortly after a boy's commitment to a training school, in this case the Lyman School for Boys, in order to determine whether they are significantly related to success or failure in adjustment in the open community after parole.

Data which could meet necessary tests of availability and measurability fell into fourteen classifications.

Statistical examination of these indicates that as predictors of future satisfactory adjustment some show so little value, in a purely statistical study of this type, as to be worth no further examination here, some apparently are significant enough to be considered and further studied and some are quite definitely of value.

The following chart presents the last two groups in graphic form.

Table XV Eight Most Significant Factors in Determining Future Success or Failure Arranged in Order of Predictive Value as Determined by Critical Ratio

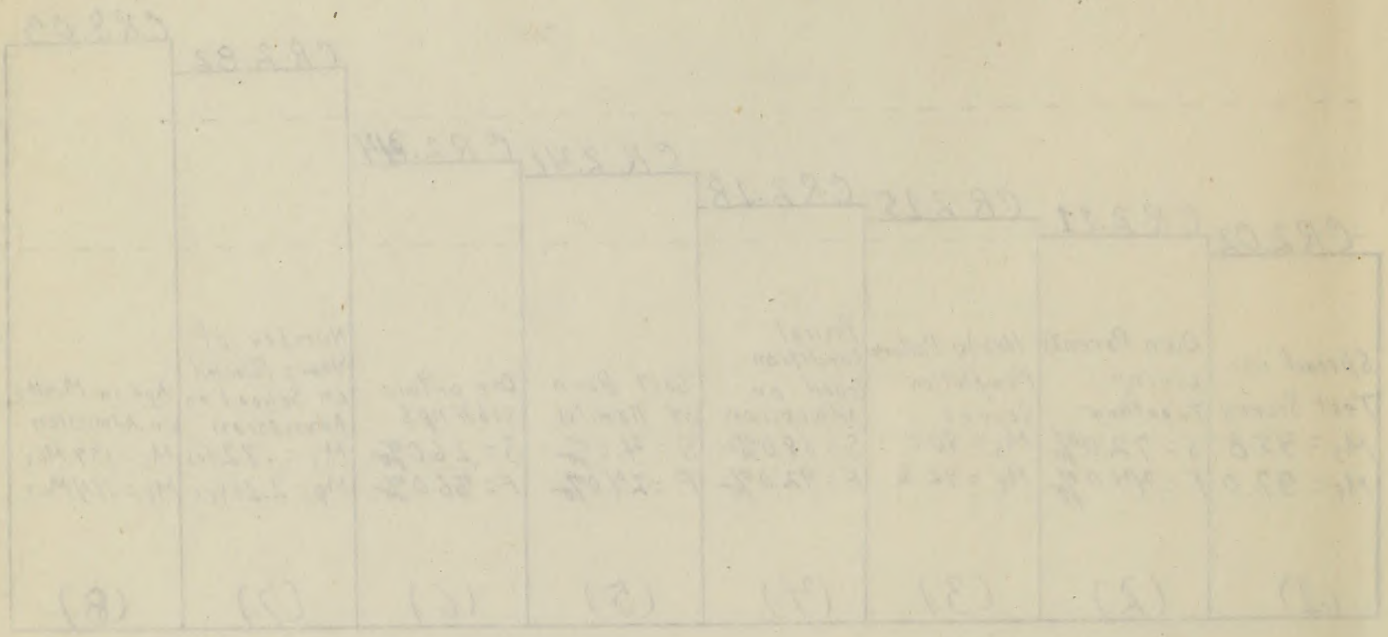


To state in words the significance of this chart:

(1) The mean of the difference between the high and low scores of the complete battery of five tests given to all in-coming boys was 45.8 in the case of the twenty-five who later became successes and 37.0 in the case of the twenty-five who later became failures.

A high spread would then point to the possibilities of later success.

(2) Seventy-two per cent of the boys who were later successes came from homes where their own parents were living together; forty-four per cent from homes where this was not so.



Having both natural parents living together is then an asset for future success.

(3) The mean score on the Healy Picture Completion Test of the twenty-five later successes was 80.0 The mean score of the twenty-five later failures was 91.2.

A score on this test of below 80.0 would tend to point toward later success, a score of above 91.2 toward later failure.

Note:-This is a reverse ratio, a high score indicating enhanced possibilities of failure.

(4) Sixty-eight per cent of the twenty-five boys who later became successes had physical conditions requiring special treatment. Ninety-two per cent did not have such conditions.

Poor physical condition would seem to point toward better chances of later success.

Note:-This apparent incongruity is probably explained by the fact that the need for special physical treatment resulted in more individual attention and is a strong argument for more professionally trained staff members.

(5) Only four per cent of the twenty-five boys who later made good adjustments were the last born of a group of siblings. Twenty-four per cent of the later

failures fell into this category.

Being the last born of a group of siblings then indicates a handicap in the possibilities of later good adjustment.

(6) Only sixteen per cent of the twenty-five later successes came from families with a total of two or three children while thirty-six per cent of the failures had this number in their family.

Coming from a family of four or five would then seem to lessen one's chances of later success.

Note:-This, at first, seems inconsistent with the results of other investigations but is explainable on the basis that if a boy gets in trouble with the law in spite of coming from a small family, he probably has more undesirable traits than a boy who gets into difficulty because of coming from a large one.

(7) The mean school retardation of the twenty-five boys who later became successes was 0.92 of a year. The mean retardation of the failures was 2.16 years.

Retardation of less than one year could then be interpreted as an indicator of future success, retardation of more than two years of future failure.

(8) The mean age of those twenty-five boys who later became successes was 159 months or thirteen years and three months. The mean age of the twenty-five who

later became failures was 164 months or thirteen years and eight months. The Critical Ratio obtained in comparing these two groups was 3.03 or well above the usually accepted point of significance.

This would tend to indicate strongly that removal from the environment in which a boy is becoming delinquent, before the age of thirteen, greatly enhances his chance of future success while leaving him in that environment later than the age of fourteen years greatly increases his hazard.

Conclusion

It would seem reasonable, in the light of the above facts, to conclude that other things being equal or nearly so, boys committed to Lyman School have a greater chance of making good adjustments in the open community if they:

(1) Are committed before they are thirteen years old.

(2) Are retarded less than one year in school.

(3) Come from large families.

(4) Are not the last born.

(5) Receive extra attention on a professional basis.

(6) Make a score lower than 80.0 in a Healy Picture Completion Test.

(7) Have both their own parents living together.

(8) Make an outstandingly high score in any of the battery of tests administered.

Many boys, of course, have such outstanding defects or assets in some particular field that the above factors are not applicable. This is particularly true of those who classify in that unpredictable, unmeasurable group known as psychopaths.

Even so, considerable value should come from considering the above factors in making initial schedule adjustments for boys recently committed to Lyman School. This will be done and, for the sake of further evaluation, any boy with five or more factors in the assets column will be tagged as a predicted success. In like manner, all boys with five or more factors in the liabilities column will be tagged as predicted failures. Close records will be kept of these boys and, at the end of five years, the percentage of correct predictions figured.

Chapter V

LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Limitations

It must be here stated that this study has been very limited as the following factors indicate.

(1) A study of only one hundred boys is not enough to be truly typical of the thousands committed to training schools.

(2) These boys, chosen consecutively during only a year, may have been subjected to a typical influence prevalent at that time.

(3) The arbitrary selection of twenty-five successes at one end of the group and twenty-five failures at the other end does not allow for the weighting of the factors studied by the middle fifty.

(4) Many conditions at Lyman School are unique with it and do not apply to training schools in general.

(5) At least three of the tests studied are not commonly used instruments.

(6) Other factors such as stability of emotions, the nature of offenses bringing about commitment, number of times previously arrested, length of time on

probation or under the guidance of some social agency, may be more significant than the ones studied.

Suggestions for Further Study

The fact that critical ratios were as high as they were and, in many cases, were as sharply drawn would indicate that further study of this general problem of seeking for predictors of salvagability of juvenile delinquents might utilize the same type of statistical techniques and be highly significant.

Much larger samplings should be taken and great care exercised to compare only measurable and typical types of data. Such data as (1) age of first arrest, (2) number of court appearances, (3) type of probationary training, (4) number and type of contacts with various social agencies, (5) type and intensity of religious training, (6) size of classes attended in school, (7) emphasis on guidance programs in school attended, (8) amount of truancy, (9) failure in specific school studies, (10) income-inhabitant ratio of the family, (11) racial extraction of the family, (12) incidence of delinquency in neighborhood, (13) specific physical limitations, and so forth, might yield significant results.

Extremely interesting results might also be obtained by an effort to determine the predictive value

of a thorough psychiatric study.

Results of the Gluecks' study of 1000 delinquent cases, as opposed to 1000 non-delinquent siblings, with many of the above factors taken into consideration, will be of tremendous interest to all those engaged in this field.

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